The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A flanged connector used to join double wall square or rectangular ducts in HVAC systems, the double wall ducts having an outer square or rectangular duct and an inner duct of corresponding shape and disposed within the outer duct, the flanged connector comprising:

a first square or rectangularly-shaped connector section composed of from 10-20 gauge metallic material, said first connector section comprising an outer insertion flange, said outer insertion flange having sufficient length to allow connection to an outer duct of a double wall square or rectangular duct;

an exterior mating flange extending substantially transversely from the outer insertion flange to define a first mating face and a first outer perimeter;

an exterior hem that is spaced outwardly from the outer insertion flange, said exterior hem extending away from the outer perimeter of the exterior mating flange;

a second square or rectangularly-shaped connector section composed of from 10-20 gauge metallic material, said second connector section comprising an inner insertion flange, said inner insertion flange having sufficient length to allow connection to an inner duct of a double wall square or rectangular duct;

an inner mating flange extending substantially transversely from the inner insertion flange to define a second mating face and a second outer perimeter; and

an inner hem that is substantially uniformly spaced outwardly from the inner insertion flange, said inner hem extending from the outer perimeter of the interior mating flange generally in the same direction as the inner insertion flange to overlap the outer insertion flange, wherein the inner hem is connected to the outer insertion flange such that the inner mating flange and the outer mating flange are aligned to form substantially one plane, the

inner hem being of such length to permit the outer insertion flange to be connected to the outer duct and having sufficient length to allow connection with the outer insertion flange.

2. The flange ring in Claim 1, wherein the inner insertion flange is longer than the outer insertion flange.

3. The flange ring in Claim 1, wherein the inner hem is fixably attached to the outer insertion flange.

4. The flange ring in Claim 1, wherein the outer and inner insertion flanges slidably engage inside surfaces of the outer and inner square or rectangular ducts.

5. The flange ring in Claim 1, further comprising a return flange affixed to the exterior hem.

6. The flange ring of Claim 5, wherein the return flange is formed by turning a portion of the exterior hem located distally from the exterior mating flange over on itself.

7. The flange ring in Claim 5, wherein the profile of the flange ring conforms to Sheet Metal and Air-Conditioning Contractors National Association Standard T24.

8. The flange ring in Claim 1, wherein the outer insertion flange is welded to the interior hem.

9. A method forming double wall ducting from thin gauge metal for use in heating, ventilating and air conditioning systems, comprising:

(a) pre-forming round cross-sectional inner and outer ducting;

(b) placing the pre-formed inner and outer ducting over respective sets of expansion dies, each comprising opposed die members, said opposed die members each having a substantially planar outwardly directed face;

(c) forcing the die members of each set away from each other while maintaining the outward die member faces substantially parallel to each other to bear against adjacent portions of the pre-formed inner or outer ducting so that the pre-formed inner and outer ducting transform in cross-sectional shape to assume a cross-sectional shape defined in part by the outwardly directed faces of the die members of the respective sets.

10. A method according to Claim 9, wherein said die members of each set having side edges substantially perpendicular to the outward faces of said die members; and, the adjacent portions of the pre-formed respective inner and outer ducting assuming the shape of the side edges of the corresponding die members.

11. A method according to Claim 10, wherein the outward faces and the corresponding side edges of the die members of each set cooperate to transform the pre-formed round cross-sectional respective inner and outer ducting into substantially rectangular cross-sections.

12. A method according to Claim 10, wherein the outward faces of the die members of each set and the corresponding side edges of the die members of each set cooperate to transform the pre-formed round cross-sectional respective inner and outer ducting into substantially square cross-sections.

13. A method according to Claim 9, wherein the outward faces of the die members of each set cooperate to transform the pre-formed round cross-sectional respective inner and outer ducting in a substantially rectangular cross-section.

14. A method according to Claim 9, wherein the outwardly directed faces of the die members of each set cooperating to transform the pre-formed round cross-sectional ducting in a substantially square cross-sectional shape.

15. A method according to Claim 9, wherein the round cross-sectional inner and outer ducting are pre-formed from strip material using a continuous forming method.

16. A method according to Claim 15, wherein the pre-formed round cross-section ducting is in the form of a spiral-seam tube composed of helically wound sheet metal strip.

17. A method according to Claim 16, wherein the seams of the helically wound sheet metal strips are interlocked to each other.

18. A method according to Claim 9, wherein the die members of each set are operated to move towards and away from each other by linear actuators.

19. A method according to Claim 18, wherein the linear actuators are comprised of hydraulic cylinders.

20. A method of forming flanged connectors for interconnecting adjacent ends of double wall ducting for use in a heating, ventilating and air conditioning system, the double ducting being of square or rectangular cross-section and comprising outer and inner ducting, the method comprising:

(a) notching the length of a first strip material to define the corners of an outer section of the flanged connector;

(b) forming the first strip material into a desired cross-sectional shape, said cross-sectional shape comprising an outer insertion section to engage within or over an

adjacent end portion of an outer square or rectangular ducting section and a mating flange section disposed substantially perpendicular to the outer insertion section;

(c) bending the first formed strip material at the notches to define a rectilinear shape corresponding to the cross-sectional shape of the outer ducting to be interconnected;

(d) affixing the end portions of the bent and formed first strip material together to form a closed, rectilinear-shaped flanged outer connector portion corresponding to the cross-sectional shape and size of the outer ducting to be interconnected;

(e) notching the length of a second strip material to define the corners of an inner section of the flanged connector;

(f) forming the second strip material into a desired cross-sectional shape, said cross-sectional shape comprising an inner insertion section engaged within or over an adjacent end portion of an inner square or rectangular ducting section and a mating section disposed substantially perpendicular to the inner insertion section;

(g) bending the second formed strip material at the notches to define a rectilinear shape corresponding to the cross-sectional shape of the inner ducting to be interconnected;

(h) affixing the end portions of the bent and formed second strips of material together to form a closed, rectilinear-shaped flanged inner connector portion corresponding to the cross-sectional shape and size of the inner ducting to be interconnected; and

(i) connecting the flanged outer and inner connector portions together such that the mating flange sections of the outer and inner flange connector portions are aligned to form substantially one plane.

21. A method according to Claim 20, wherein the steps of forming the first and second strip materials into desired cross-sectional shapes occurs after the step of notching the lengths of a strip stock to define the corners of the flanged inner and outer connector portions.

22. A method according to Claim 20, wherein the steps of notching the lengths of strip stock to define the corners of the flanged inner and outer connectors occur after the step of forming the strip stock into desired cross-sectional shapes.

23. A method according to Claim 20, wherein the step of forming the strip stock further comprising forming a reinforcing section attached to said mating flange section distal from the insertion section of the flanged outer connector portion.

24. A method according to Claim 23, wherein the step of forming the reinforcing section comprising forming a hem section projecting from the mating section of the outer connector portions in a direction away from the mating section.

25. A method according to Claim 24, wherein said hem section extending in a direction corresponding to the direction that the insertion section extends from the mating section of the outer connector portion.

26. A method according to Claim 25, wherein said hem section and said insertion section are substantially parallel to each other.

27. A method according to Claim 25, wherein said hem section extending substantially diagonal in relationship to the mating section.

28. A method according to Claim 25, wherein the hem section extending substantially perpendicularly to the mating section.

29. A method according to Claim 24, wherein the step of forming the reinforcing section further comprising forming a distal portion of the hem section over on itself to define a return section.

30. A method according to Claim 29, wherein said return section is disposed at an angle relative to a hem section.

31. A method according to Claim 29, wherein said return section is in the form of a bead section.

32. A method according to Claim 31, wherein said bead section in cross-section of shape selected from the group consisting of square, triangular, rectilinear, circular and oval.

33. A method according to Claim 23, wherein the step of forming the reinforcing section comprising forming a hem section projecting away from the mating section in a direction substantially along the mating section toward the insertion section.

34. A method according to Claim 33, further comprising the step of forming an extension section projecting from the hem section in a direction substantially along the insertion section.

35. A method according to Claim 20, wherein the mating flange sections of the outer and inner connector portions are substantially planar.

36. A method according to Claim 20, wherein the mating flange sections of the outer and inner connector portions are substantially planar and at least one of the mating flange sections of the outer and inner connector portions is formed with a depression extending along the plane of the mating flange section.

37. A method according to Claim 20, wherein the first and second strip materials are formed into desired cross-sectional shapes by passing the strip materials through a plurality of respective forming rollers.

38. The method of Claim 37, further comprising forming the strip materials into desired cross-sectional shapes also by pressing the strip material along their lengths.